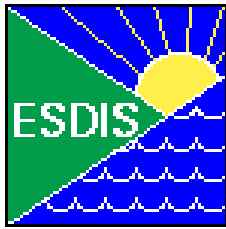


Network Traffic Requirements Review



ESDIS Traffic Requirements Status Review

November 2, 2000

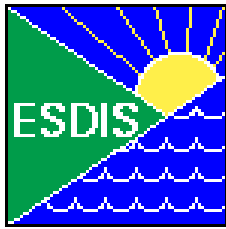


Network Traffic Requirements Review



Agenda

- Major Network Requirements Changes Since March 2000 Review
- Continuing Activities
- Detailed Mission/Project Review
- Next Steps

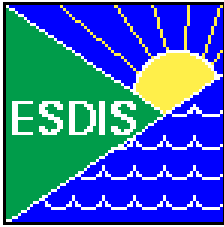


Network Traffic Requirements Review



ESDIS Requirements Activities Since March 2000 Review

- Reduced scope of information contained in ESDIS Traffic Requirements Database (ETRD) to include only those Missions/Projects identified by ESDIS; deleted a number of non-Earth Science missions
- Evaluated overhead application and developed a strategy for improvements to be implemented before the next Program Operating Plan (POP) cycle
- Developed voice requirement tracking strategy
- Began tracking NASA Integrated Services Network (NISN) Service Request (NSR) and Project Service Level Agreement (PSLA) information in which requirement implementation is indicated
- Reviewed 2,800+ requirements across 20+ EOS missions/projects
- Incorporated 50 additional Database Change Requests (DCRs) since last review

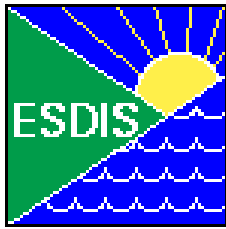


Network Traffic Requirements Review



Missions deleted from ETRD as of April 2000

ADEOS-I
AM-2
ESOC
GOES
Lewis/Clark
PM-2
Renaissance
Starlink
Topex

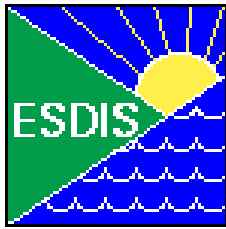


Network Traffic Requirements Review



Overhead Evaluation

- Evaluated requirement values communicated to NISN (raw requirements * 1.5 contingency factor) against requirements including Application overheads
 - Note, NISN and ESDIS agreed in 1999 that NISN would address 80% Network Utilization and 1.25 Network Protocol overheads on all requirements
- Finding: Inclusion of Application overheads on raw requirements results in an overall delta of 3.4%
- The ETRD is being modified to allow inclusion of Application overheads and exclusion of Network Protocol and Utilization overheads

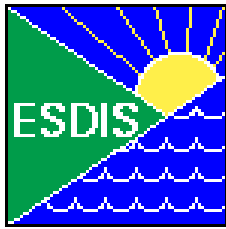


Network Traffic Requirements Review



Strategy for Capturing Dedicated Voice

- Verify that all sources (e.g., documents) containing voice requirements are identified for each mission; incorporate all voice requirements into ETRD
- Verify that all validated voice requirements identified in 2001 PSLA are included in ETRD
- Develop an ETRD report that identifies all voice requirements for input to NISN PSLAs

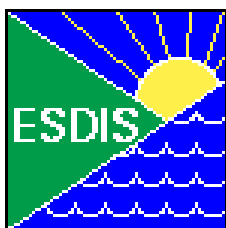


Network Traffic Requirements Review



NSR and PSLA Tracking

- Assigned FY02 PSLA as default PSLA designation for all requirements
- Identified active NSRs for ICESat, Aqua, and ADEOS-II in DCRs 137, 127, and 161, respectively
- Process must be identified for communicating which individual requirements are included in each rollup provided as input to the ESDIS PSLA

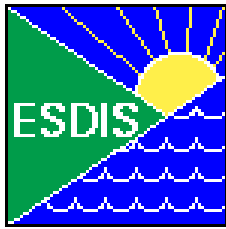


Network Traffic Requirements Review



Unidentified Voice Requirement Projects

Project	Project
Acrimsat	RadarSat
FOO	SEASTAR/SEAWIFS (Basic User Reqs. Only)
ICESat	TOMS
Jason -1 (Basic User Reqs. Only)	TRMM
NPP	UARS
Meteor/Sage III (Basic User Reqs. Only)	

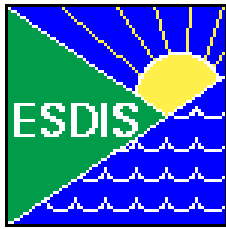


Network Traffic Requirements Review



Requirements - Continuing Activities

- Monitor and assess network requirements for implementation in support of the EOS Mission Ground System
- Continue to track NSRs against requirements and monitor status
- Refine and document implementation assumptions
- Continue to monitor the transition of science data flows to the Abilene network and, potentially, flows to the vBNS network

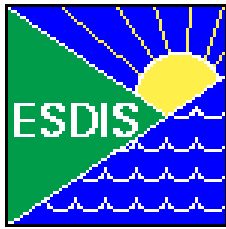


Network Traffic Requirements Review



Future Activities

- Incorporate Abilene flow requirements into the ETRD
- Implement voice strategy
- Reconfirm information and level of detail required by NISN for PSLA development
- Incorporate NISN pricing policy for FY02 into ETRD automated price generation
- Identify mission requirements sources for which requirements are currently based only on IPTX/MDM reverse engineering estimates

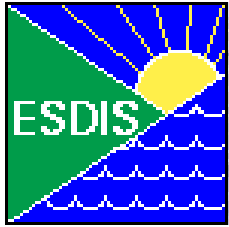


Network Traffic Requirements Review



ETRD Enhancements

- Implemented fields to track both NSR numbers and PSLA designators
- Enhanced reporting capabilities to include Parameter Selection Criteria reports for Requirement Queries and Rollup generation
- Enabled generation of Rollup Details report
- Introduced Overhead Factor Type field

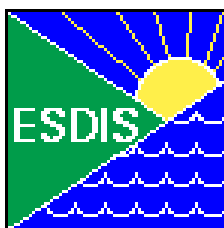


Network Traffic Requirements Review



Planned ETRD Enhancements

- Enable automatic calculation of costs for requirements that are priced based on rate tables
- Enable tracking of tail circuit costs, including service provider prices

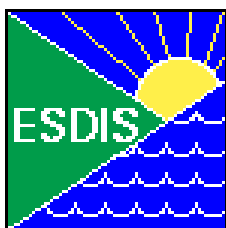


Network Traffic Requirements Review



EOS Missions/Projects 1/2

Project	Project Lead	Start Date	End Date
Acrimsat	T. Perrotto	12/1/1999	1/1/2005
ADEOS-II	T. Perrotto	11/1/2001	11/01/2004
Aqua	J. Underwood	7/15/2001	7/15/2006
Aura	A. Smith	6/24/2003	6/24/2008
ECS InterDAAC	J. Underwood	N/A	
ECS Outflows	J. Underwood	N/A	
EDOS	T. Perrotto	N/A	
EPGN	T. Perrotto	N/A	
ESDIS Institutional	T. Perrotto	N/A	
FOO	J. Ruzzi	12/31/2002	1/1/2020
ICESat	J. Matalavage	12/15/2001	12/15/2006
Jason-1 (Basic User Reqs. Only)	J. Matalavage	3/7/2001	3/7/2006
Interdisciplinary	J. Matalavage	Various	1/1/2020
Key Scientist	J. Matalavage	Various	1/1/2020

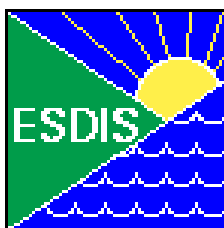


Network Traffic Requirements Review



EOS Missions/Projects 2/2

Project	Project Lead	Start Date	End Date
Landsat 7	J. Ruzzi	4/15/1999	4/15/2004
Meteor/Sage III (Basic User Reqs. Only)	J. Ruzzi	12/1/1999	12/1/2004
NPP	T. Perrotto	Late 2005	~2010
QuickSCAT	T. Perrotto	5/16/1999	5/1/2001
RadarSat	A. Smith	4/11/1995	4/11/2000
SEASTAR/SEAWIFS (Basic User Reqs. Only)	A. Smith	8/1/1997	8/1/2002 or 8/1/2007
Terra	T. Perrotto	12/1/1999	1/1/2005
TRMM	J. Underwood	11/28/97	11/19/2000
UARS	A. Smith	9/12/1991	9/30/2003
TOMS	M. Lawrence	7/2/1996	9/30/2003

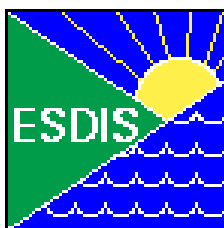


Network Traffic Requirements Review



EOS Mission/Projects with No Current or Pending Changes

Project	Project Lead	Start Date	End Date
Acrimsat	T. Perrotto	12/1/1999	1/1/2005
ECS InterDAAC	J. Underwood	N/A	
ESDIS Institutional	T. Perrotto	N/A	
FOO	J. Ruzzi	12/31/2002	1/1/2020
NPP	T. Perrotto	Late 2005	~2010
Meteor/Sage III	J. Ruzzi	12/1/1999	12/1/2004
RadarSat	A. Smith	4/11/1995	4/11/2000
SEASTAR/SEAWIFS	A. Smith	8/1/1997	8/1/2002
TOMS	M. Lawrence	7/2/1996	9/30/2003

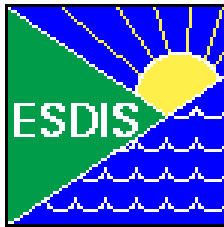


Network Traffic Requirements Review



Presentation Order of Missions with Changes

Project	Project Lead	Project	Project Lead
Global DCRs	A. Smith	ADEOS-II	T. Perrotto
EDOS	T. Perrotto	Terra	T. Perrotto
EPGN	T. Perrotto	Aura	A. Smith
ECS Outflows	J. Underwood	Jason-1	J. Matalavage
Interdisciplinary	J. Matalavage	Landsat-7	J. Ruzzi
Key Scientists	J. Matalavage	QuikSCAT	T. Perrotto
Aqua	J. Underwood	TRMM	J. Underwood
ICESat	J. Matalavage	UARS	A. Smith

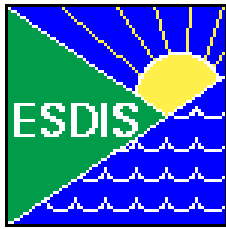


Network Traffic Requirements Review

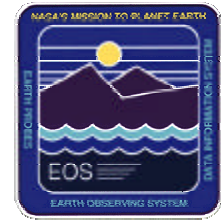


Global DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
131	Update Ramp-up Schedule Milestones	Updated Ramp-up milestones for Terra, Aqua, ICESat, and Aura, per Basic Assumptions and Guidelines for EOS Network Requirements
132	Update Traffic Requirements Field for All Missions	Standardized all science traffic descriptions to the format "Science: (instrument name)-(description)"
139	Update Distance Categories	Verified all Distance Categories are correct for each requirement's Source and Destination
149	Change all ERPS related NISN Service to RT Mission Critical	Changed Spacecraft Command and Telemetry flows within the ERPS from Mission Critical to RT Mission Critical

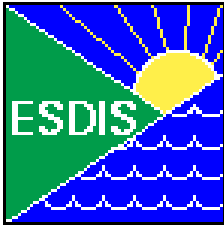


Network Traffic Requirements Review



Future Global DCRs

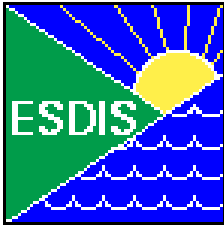
- Monitor evaluation of changing Spacecraft Command and Telemetry flows between EOS non-prime missions' (e.g., Landsat, QuikSCAT, etc.) Operations Centers and supporting ground sites to RT Mission Critical; incorporate resulting changes to requirements



Network Traffic Requirements Review



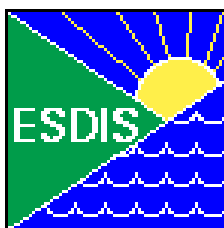
Mission / Project Specific Review



Network Traffic Requirements Review



EDOS



Network Traffic Requirements Review



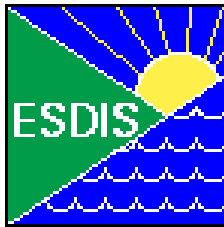
EDOS Milestones

Date	Date Explanation
Low-rate Internet Protocol (IP) interfaces to/from Ground Stations (eight requirements)	
6/30/2000	GSIP Interface at AGS
3/17/2000	GSIP Interface at WSC
4/7/2000	GSIP Interface at SGS
4/1/2000	GSIP Interface at WFF
12/31/2008	Aura – end on-orbit operations
High-rate Clock & Data from Ground Stations (six requirements)	
1/1/1997	GSIF Interface at WSC
11/1/2000	GSIF Interface at Gilmore Creek
8/1/2000	GSIF Interface at SGS
1/1/2020	Unspecified end date

Date	Date Explanation
Operations Management – AGS and SGS (six requirements)	
11/1/2000	GSIF Interface at Gilmore Creek
8/1/2000	GSIF Interface at SGS
1/1/2020	Unspecified end date
Operations Management – WSC (four requirements)	
1/1/1997	GSIF Interface at WSC
12/1/1999	GSIF management flow increase
1/1/2020	Unspecified end date

Acronyms and Abbreviations:
 AGS Alaska Ground Station
 GSIF Ground Station Interface Facility
 GSIP Ground System Interface Processor
 SGS Svalbard Ground Station
 WFF Wallops Flight Facility
 WSC White Sands Complex

Note: Highlighted dates have been changed since March 2000



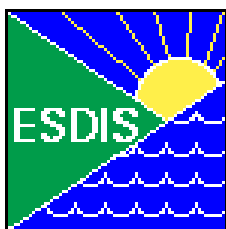
Network Traffic Requirements Review



EDOS DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
166	EDOS: Change start dates	Changed Milestone dates to reflect implementation and changed EDOS-EMOS Operations & Management (O&M) to start date to GSIF at WSC Milestone
167	Clean up EDOS mutually exclusive MasterIDs	Eliminated mutual exclusivity between flows in opposite directions
169	Change GSIF Interface at SGS and Gilmore Creek Milestones	Changed GSIF Interface at Gilmore Creek to 11/1/00; change GSIF Interface at SGS to 8/1/00

No Future Changes

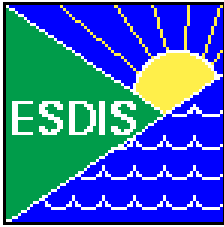


Network Traffic Requirements Review



EDOS Information Sources

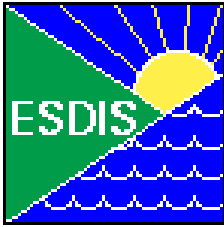
Information Source	Date of Source
EOS Low Rate Data IP Transfer System (presentation)	7/1999
ESDIS Level 2 Requirements for Overall EOS Ground System, Vol. 0, Appendix D	3/2000
Email from G. Knoble regarding NISN level of service for IP services to the EPGN sites and WSC with control center flows	7/17/2000
EDOS-EBnet Interface Control Document (ICD)	9/2000
GSIP NSR completion dates	Various



Network Traffic Requirements Review



EPGN

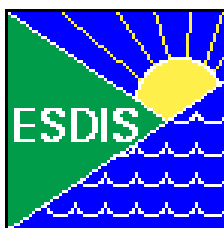


Network Traffic Requirements Review



EPGN Milestones

Date	Date Explanation
9/1/1997	Start SGS flows
1/1/1999	Start AGS flows (to be verified)
1/1/2020	Unspecified end date



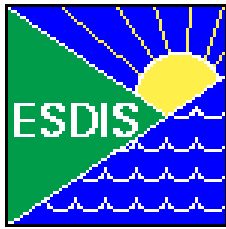
Network Traffic Requirements Review



EPGN DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
168	Update EPGN requirements to reflect implementation	Added implementation based AGS Closed IOnet requirement, updated SGS Closed IOnet requirement

No Future Changes

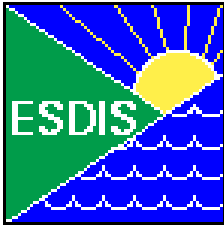


Network Traffic Requirements Review



EPGN Information Sources

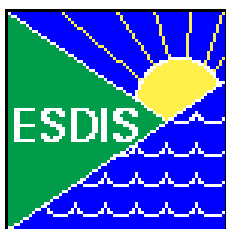
Information Source	Date of Source
Discussions concerning SGS-GSFC and AGS-GSFC Closed IOnet implementation	Various



Network Traffic Requirements Review



ECS - Outflows

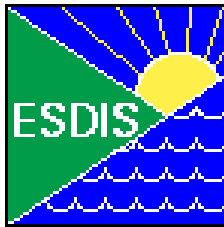


Network Traffic Requirements Review



ECS - Outflows Milestones

Date	Date Explanation
01/01/1999	Start of Distributed Active Archive Center (DAAC) outflows
01/01/2000	Flow ramp up
01/01/2001	Flow ramp up
01/01/2002	Flow ramp up
01/01/2006	DAAC outflow end date

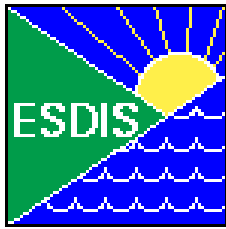


Network Traffic Requirements Review



ECS - Outflows DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
154	Revised ESDIS DAAC Outflow Req-ECS Outflows	Updated DAAC Outflows based on revision of ESDIS Site Version 4 (EOSNAPs v4.xls), EOSDIS Science Support network (ESSn) standard science flows

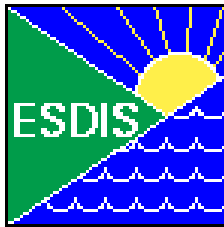


Network Traffic Requirements Review

Future ECS-Outflows Changes



- Verify DAAC outflow end date and update if required

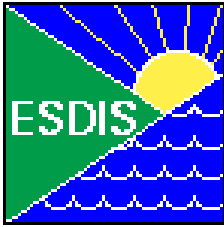


Network Traffic Requirements Review



ECS - Outflows Information Sources

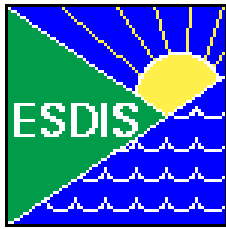
Information Source	Date of Source
Budget Model Baseline Version 5.1	2/1998
ESDIS Site Version 4 (EOSNAPs v4.xls) (provided by Andy Germain)	10/6/2000



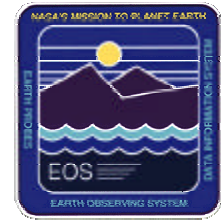
Network Traffic Requirements Review



Interdisciplinary

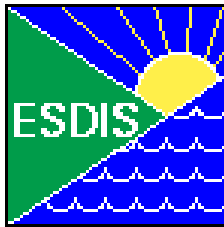


Network Traffic Requirements Review



Future Interdisciplinary Changes

- NI-EOS Networking Project Basic User Service Requirements Document is out of date
 - Locate current documentation and incorporate changes into ETRD as necessary

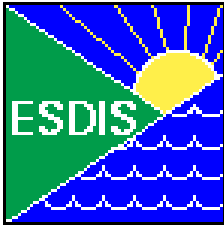


Network Traffic Requirements Review



Interdisciplinary Information Sources

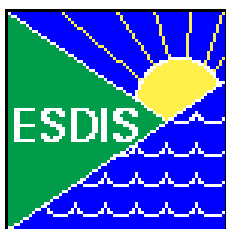
Information Source	Date of Source
ESDIS Sites v4 provided by Andy Germain	10/3/2000
NI-EOS Networking Project Basic User Service Requirements Document	undated



Network Traffic Requirements Review



Key Scientist



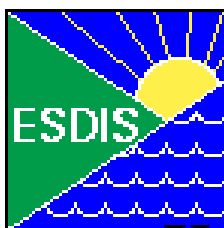
Network Traffic Requirements Review



Key Scientist Milestones

Date	Date Explanation
6/30/1993	Key Scientist - Start
1/1/2020	Key Scientist - Stop

Milestones for mission-specific Key Scientist flows are associated with the missions' milestones.

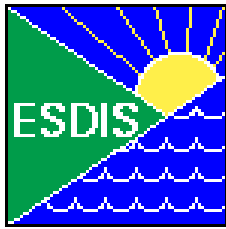


Network Traffic Requirements Review

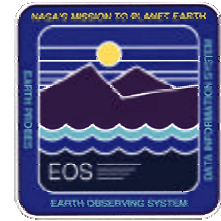


Key Scientist DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
152	Update Key Scientist Flows	Updated Start/Stop dates of mission-related flows to correspond with the appropriate mission milestones

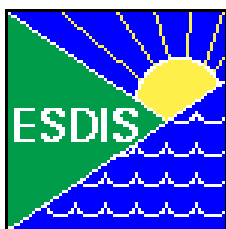


Network Traffic Requirements Review



Future Key Scientist Changes

- NI-EOS Networking Project Basic User Service Requirements Document is out of date
 - Locate current documentation and incorporate changes into ETRD as necessary

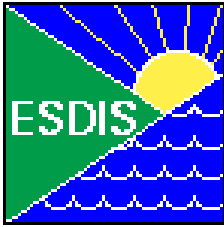


Network Traffic Requirements Review



Key Scientist Information Sources

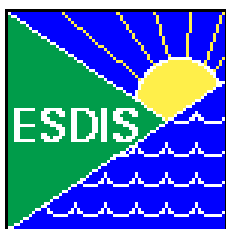
Information Source	Date of Source
NI-EOS Networking Project Basic User Service Requirements Document	undated



Network Traffic Requirements Review



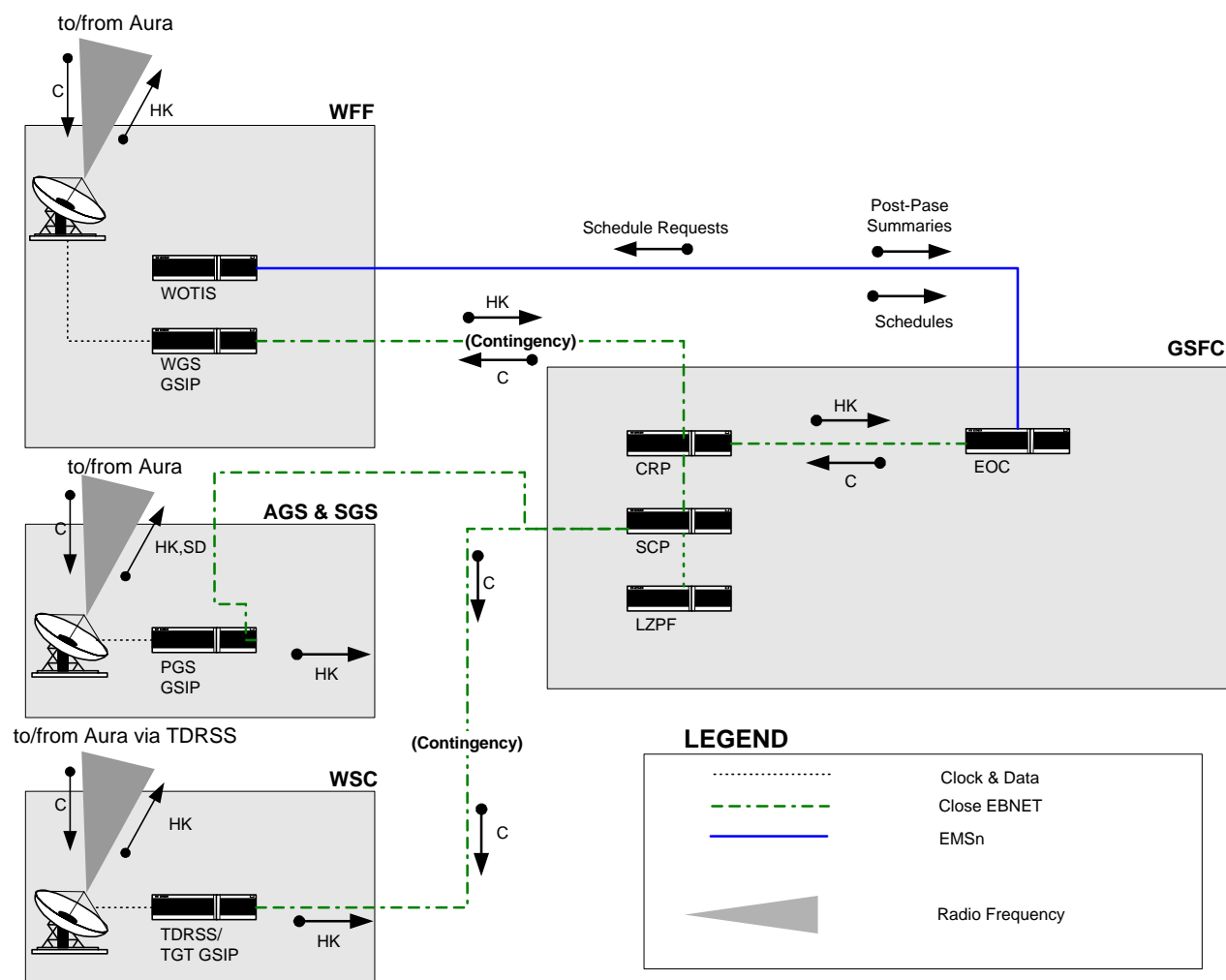
Aqua

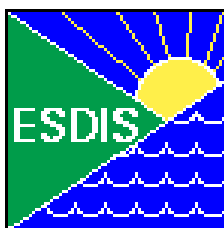


Network Traffic Requirements Review



Aqua Mission Data Flows

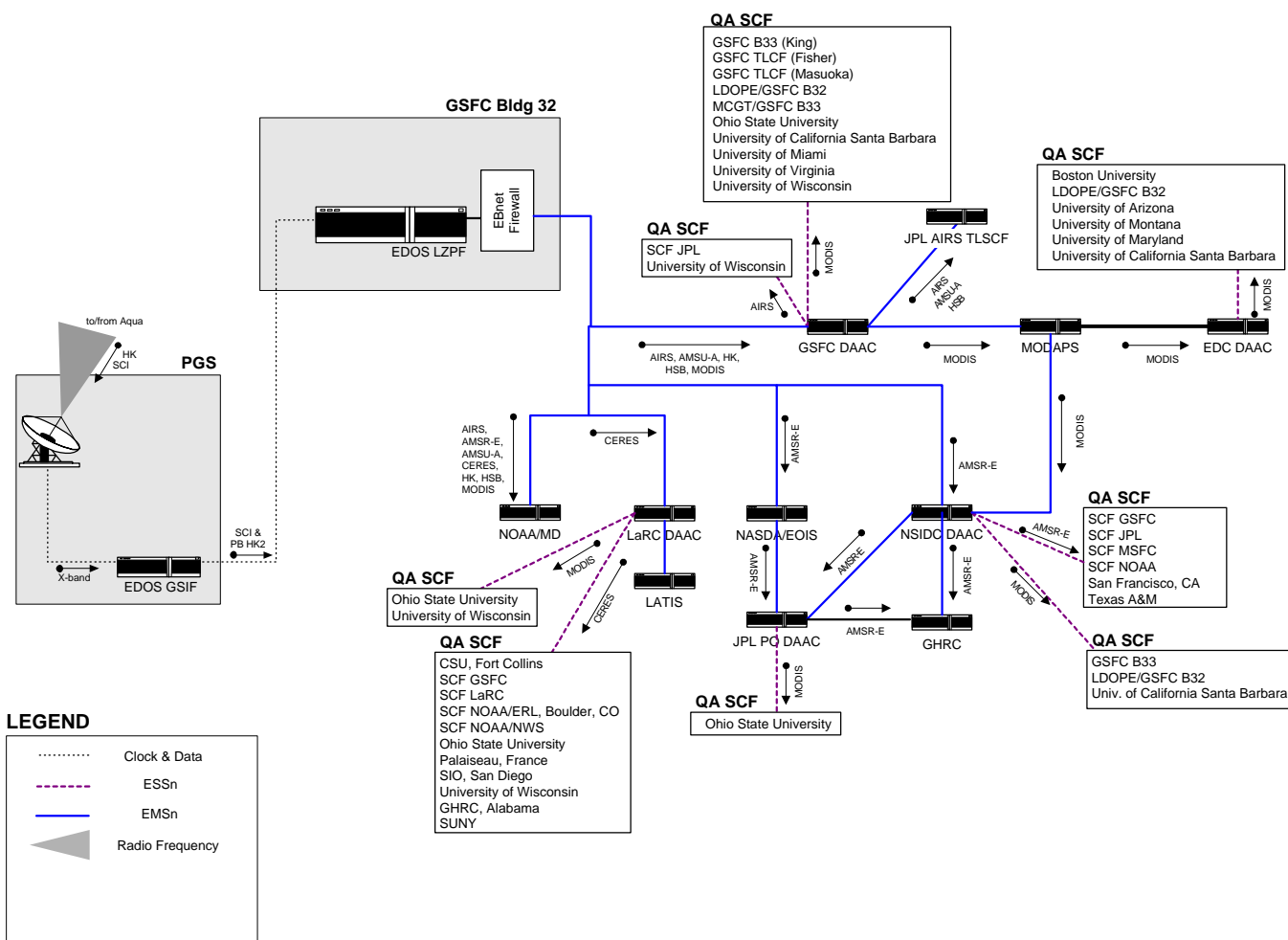


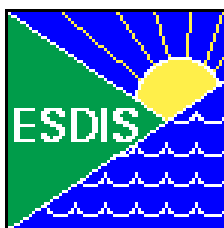


Network Traffic Requirements Review



Aqua Science Data Flow





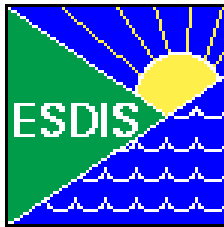
Network Traffic Requirements Review



Aqua Milestones

Mission		Inter-DAAC	
Date	Date Explanation	Date	Date Explanation
12/1/1999	Start prelaunch testing	07/15/2007	Launch plus 6 years
01/15/2001	Launch minus 6 months	6/21/2000	Launch minus 6 months
07/15/2001	Launch	12/21/2001	Launch plus 1 year at 50% Processing
07/15/2002	Launch plus 1 year	12/21/2002	Launch plus 2 years at 75% Processing
07/15/2003	Launch plus 2 years	12/2003 - 12/2005	Assumption that data for years 2003 - 2005 are the same as for 2002
07/15/2004	Launch plus 3 years	12/21/2005	End of Mission: 100% Processing
07/15/2005	Launch plus 4 years	12/21/2001 (L+ 1 yr) - 12/21/2002 (L +2 yrs)	1 x 75% Reprocessing
07/15/2006	Terminate on-orbit operations	12/21/2002 (L +2 yrs) - 12/21/2005 (EOM)	2 x 100% Reprocessing

Note: Highlighted dates have been changed since March 2000

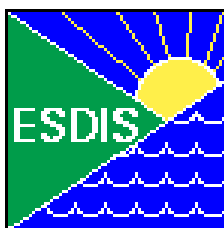


Network Traffic Requirements Review



Aqua DCRs Since March 2000 Review 1/2

DCR#	DCR Title	DCR Description
127, 138	Aqua NSR	Started process of tracking NSRs against requirements
128, 158	Aqua Launch Slip	Changed Aqua launch from December 2000 to July 2001 and slipped affected milestones
133	Aqua AMSR-E Science Investigator-led Processing System (SIPS) Requirements	Added AMSR-E SIPS Requirements to the ETRD
134	Aqua MODAPS SIPS Requirements	Added MODAPS SIPS Requirements to the ETRD

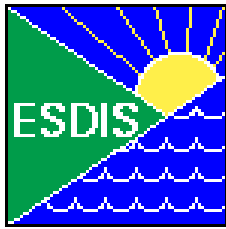


Network Traffic Requirements Review



Aqua DCRs Since March 2000 Review 2/2

DCR#	DCR Title	DCR Description
135	Update requirements to reflect Aqua Ground System Requirements Document (GSRD)	Changed Aqua AMSR-E data rates to match Aqua GSRD
136	Aqua AIRS, HSB, and AMSU SIPS requirements	Incorporated AIRS, HSB, and AMSU SIPS requirements into the ETRD
151, 153	Addition of MODIS ramp-up requirements	Addition of science ramp-up requirements for MODIS
171	Update AMSR-E Rate Buffer requirements to NASDA	Updated EDOS Rate Buffer requirements to NASDA for AMSR-E

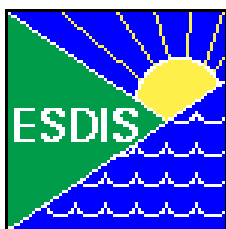


Network Traffic Requirements Review



Future Aqua Changes

- AMSR-E SIPS Requirement from RSS to Ames (1270 MBytes/day)
 - Once the requirement is approved by the ESDIS Configuration Change Board (CCB), the change will be incorporated in the ETRD
- Incorporate new dates from October 2000 version of the *Basic Assumptions and Guidelines Handbook for EOS Network Requirements* and verify that new Ramp-up Schedule is applied correctly to all requirements

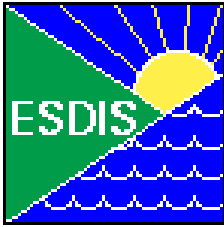


Network Traffic Requirements Review



Aqua Information Sources

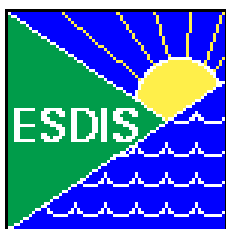
Information Source	Date of Source
MODAPS SIPS ICD	01/2000
AMSR-E SIPS ICD	03/2000
ESDIS Level 2 Requirements for Overall EOS Ground System, Volume 0, Appendix D	03/2000
AIRS SIPS ICD	04/2000
Aqua GSRD	06/2000
Basic Assumptions and Guidelines Handbook for EOS Networks Requirement, Ver 1.0	09/2000
ESDIS Site Version 4 (provided by Andy Germain)	10/6/2000



Network Traffic Requirements Review



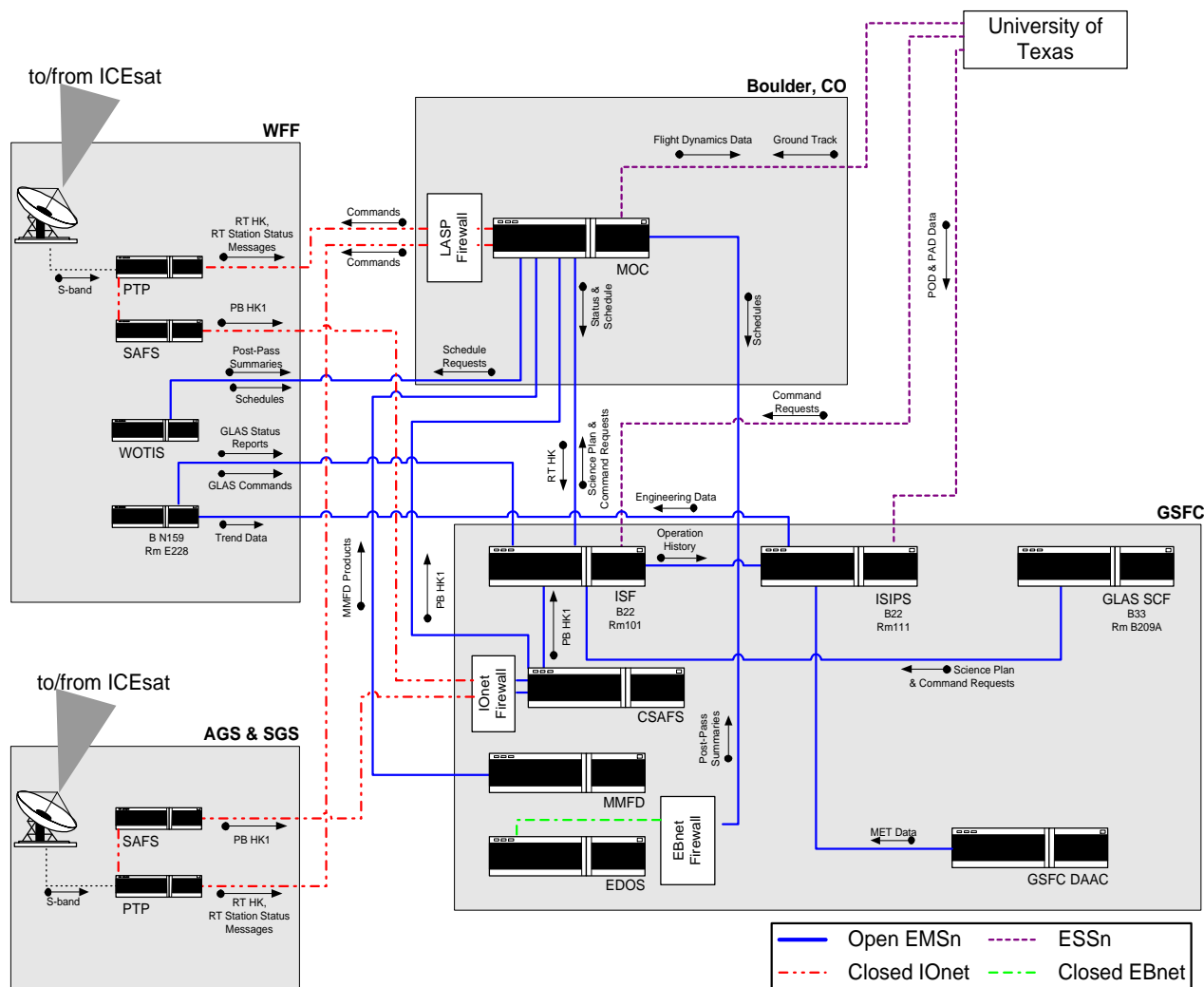
ICESat



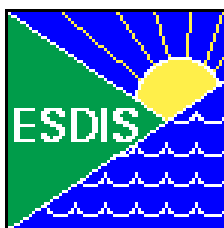
Network Traffic Requirements Review



ICESat Mission Data Flows







Network Traffic Requirements Review

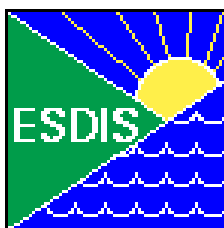


ICESat Milestones

Mission		Inter-DAAC *	
Date	Date Explanation	Date	Date Explanation
6/15/2001	Launch minus 6 months	1/1/2001	Launch minus 6 months
12/15/2001	Launch	4/1/2001	Launch minus 3 months
12/15/2002	Launch plus 1 year	7/1/2002	Start Year 2
12/15/2003	Launch plus 2 years	7/1/2003	Start Year 3
12/15/2004	Launch plus 3 years	7/1/2004	End of Mission
12/15/2005	Launch plus 4 years		
12/15/2006	Terminate on-orbit operations		
12/15/2007	Launch plus 6 years		

Note: Highlighted dates have been changed since March 2000

* InterDAAC dates must be reconciled with new dates listed in 10/2000 version of the Basic Assumptions and Guidelines Handbook for EOS Networks Requirements

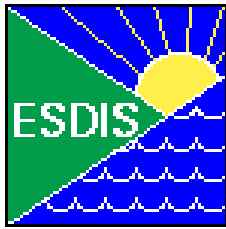


Network Traffic Requirements Review



ICESat DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
125	ICESat real-time Routing Update	Corrected the routing of some R/T flows per email from Susan Imhoff
126	ICESat New ICESat Science Facility (ISF) Requirements	Addition of three new requirements to the ISF
137	ICESat NSRs Added	Addition of ICESat related NSRs to the database
140	Update ICESat Milestones to Reflect Launch Slip	Updated ICESat Milestones for the launch slip from 7/01 to 12/01
142	Addition of ICESat Requirements	Addition of requirements between EDOS and the ICESat Mission Operations Center (MOC), EDOS and the ICESat SIPS, and EDOS and NSIDC

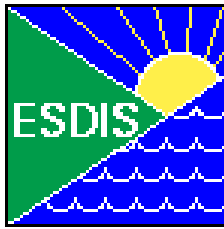


Network Traffic Requirements Review



Future ICESat Changes

- Changes based on approval of all requirements by ESDIS
- Verify documentation of testing requirements
- Incorporate new dates from October 2000 version of the *Basic Assumptions and Guidelines Handbook for EOS Network Requirements* and verify that new Ramp-up Schedule is applied correctly to all requirements



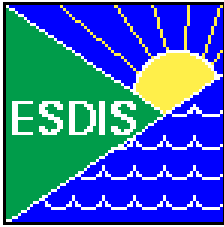
Network Traffic Requirements Review



ICESat Information Sources

Information Source	Date of Source
ICESat Mission Operations Working Group II (MOWG II)	9/1999
Data flow requirements from David Hancock, Science System Development Manager	9/7/1999*
Interface Requirements Document (IRD) between EDOS and EOS Ground Elements	2/14/2000
ICESat Mission Operations Requirements Document (MORD)	3/2000
Email from Susan Imhoff	5/10/2000
Basic Assumptions and Guidelines Handbook for EOS Networks Requirements, Version 1.0	9/2000
Verification through discussions with various ICESat project members	various

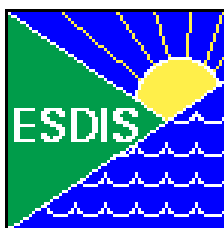
* There were minor fluctuations in flow volumes that the project did not feel would impact the network. They were not captured in David Hancock's spreadsheet and, therefore, are not captured in the ETRD.



Network Traffic Requirements Review



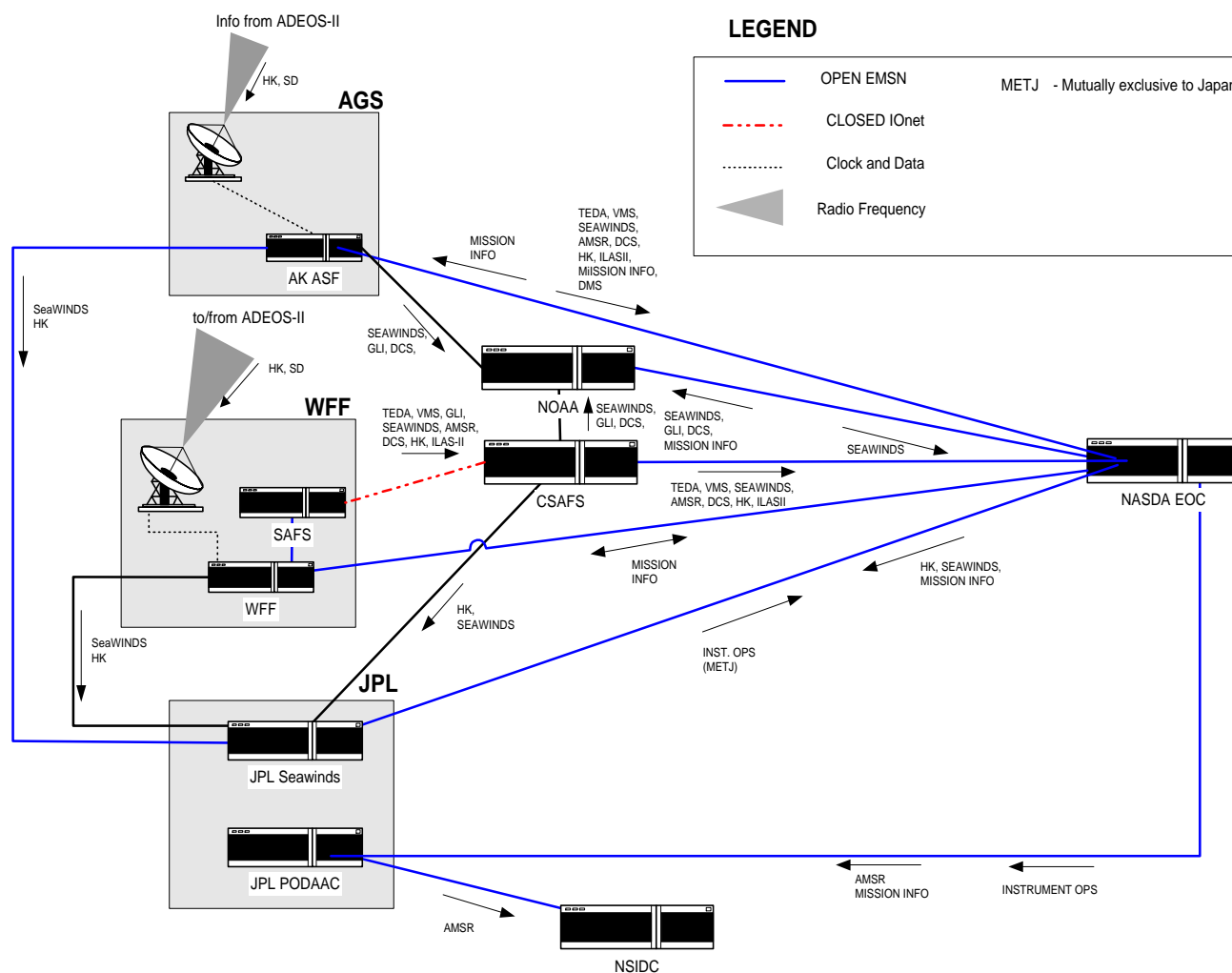
ADEOS II

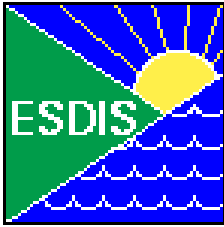


Network Traffic Requirements Review

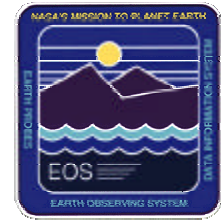


ADEOS II Operational Data Flows



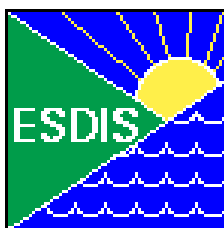


Network Traffic Requirements Review



ADEOS II Milestones

Date	Explanation
11/1/2000	Start EBnet Support
8/1/2001	Launch minus 3 months
11/1/2001	Launch
11/1/2004	Terminate On-Orbit Operations

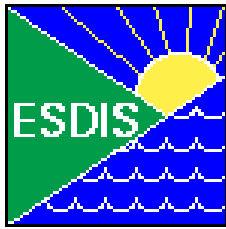


Network Traffic Requirements Review



ADEOS-II DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
159	ADEOS-II Sept 00 Update	Updated requirements based on planned implementation (i.e., flow routing) and include Mode 1 requirements
161	Add ADEOS-II NSR	Associated all requirements with NSR # 25562

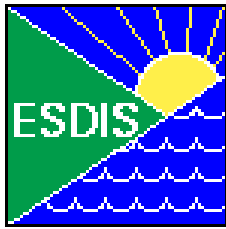


Network Traffic Requirements Review



Future ADEOS-II Changes

- Update Milestones pending identification of new launch date

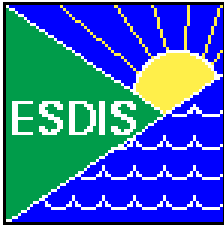


Network Traffic Requirements Review



ADEOS-II Information Sources

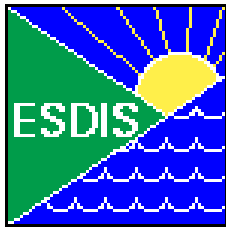
Information Source	Date of Source
ADEOS-II Network Communications IRD	4/1999



Network Traffic Requirements Review



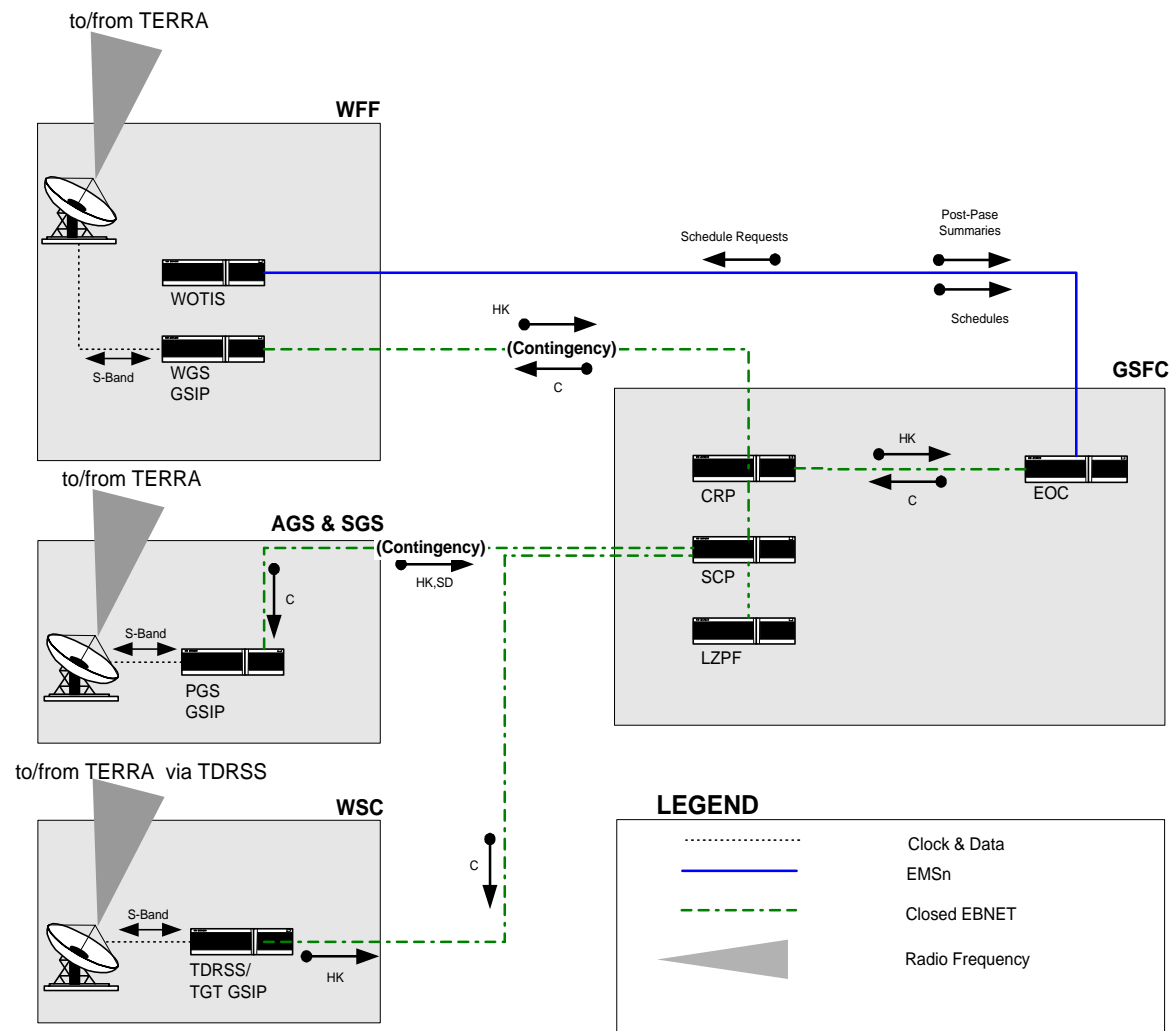
Terra

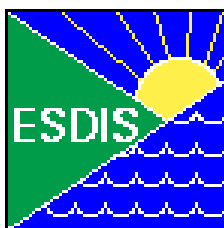


Network Traffic Requirements Review



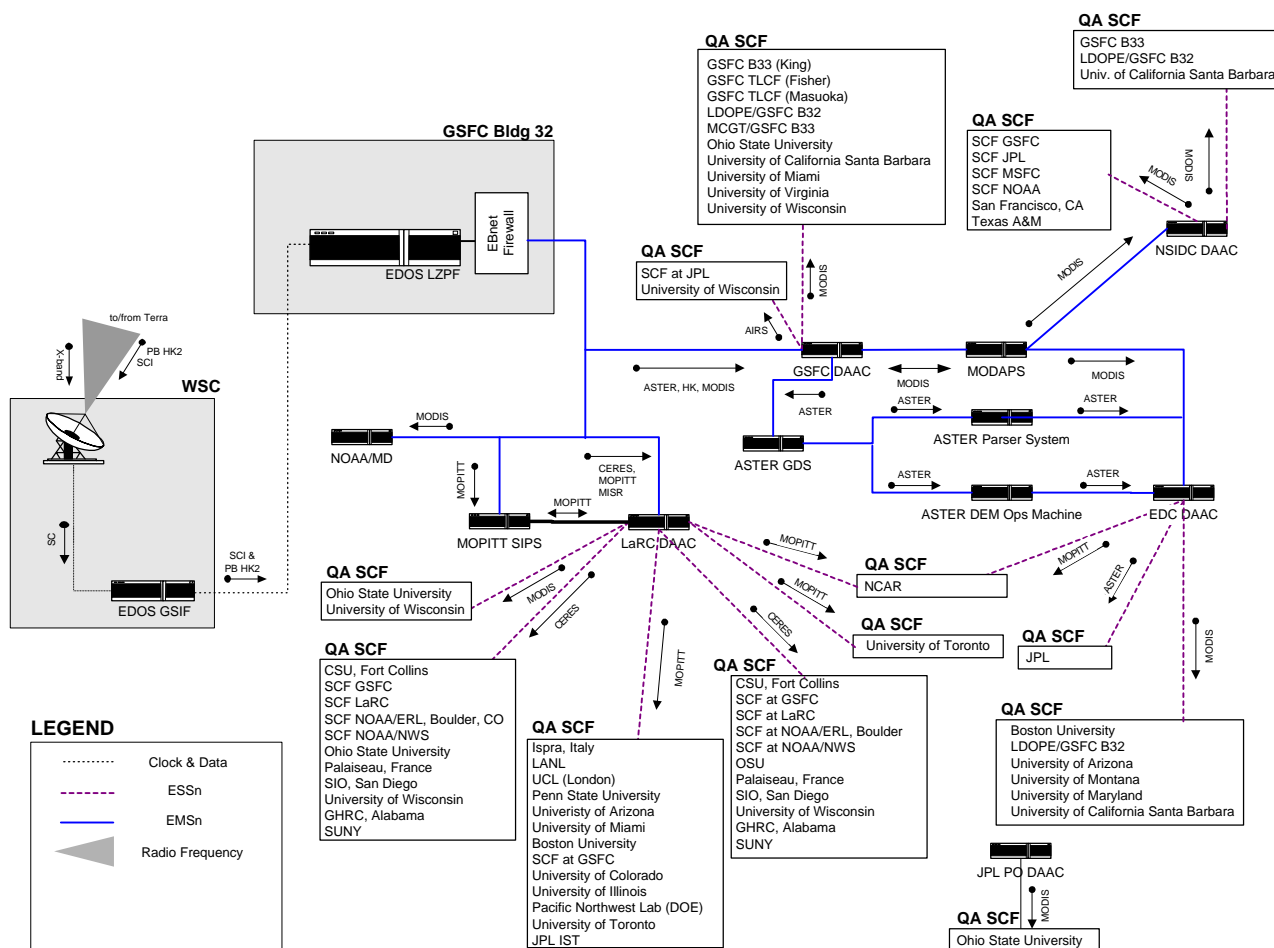
Terra Mission Data Flows

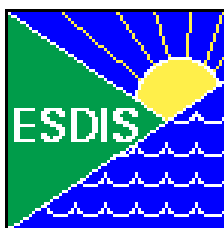




Network Traffic Requirements Review

Terra Science Data Flows





Network Traffic Requirements Review

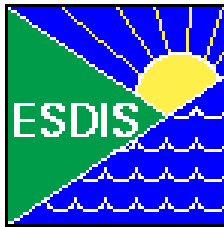


Terra Milestones

Date	Date Explanation	Date	Date Explanation
5/1/1997	Inter-DAAC, Terra Start Support and Year 1	7/28/2000	Inter-DAAC Terra, Start Year 2 (original) *
3/01/1999	Inter-DAAC Terra Launch minus 3 months (original)	1/01/2001	Inter-DAAC Terra, New Start Year 2 (revised)
7/01/1999	Inter-DAAC Terra New Launch minus 3 months (revised)	7/28/2001	Inter-DAAC Terra, Start Year 3 (original) *
12/01/1999	Launch	01/01/2002	Inter-DAAC Terra, New Start Year 3 (revised)
1/01/2001	CMD and TLM to IP at WSC	7/28/2004	Inter-DAAC Terra End of Mission
1/01/2001	CMD and TLM to IP at SGS CMD and TLM to IP at AGS	01/01/2005	Inter-DAAC Terra New End of Mission
1/01/2001	CMD and TLM to IP at WFF	01/01/05	Terminate On-Orbit Operations

Note: Highlighted dates have been changed since March 2000

* Upon reconciliation of all requirements to new Ramp-up Schedule, will eliminate “original” milestones as appropriate.

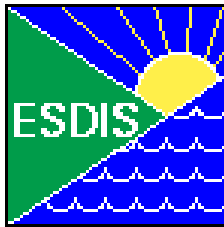


Network Traffic Requirements Review



Terra DCRs Since March 2000 Review 1/2

DCR#	DCR Title	DCR Description
122	Update Low Rate Transition to IP Dates	Changed Transition to IP for Terra Clock and Data dates based on implementation slip
143	Add Terra SIPS related Tier 2 Locations	Added MOPITT SIPS, ASTER OSF Parser System, and ASTER DEM Ops machine as Tier 2 locations
144	Add Terra MOPITT SIPS related milestones	Added 7/1/00: Transition MOPITT L1 processing to Langley Research Center (LaRC) DAAC and 7/1/2001: Transition MOPITT L2 processing to LaRC milestones
145	Add Terra MOPITT SIPS Requirements	Added requirements from the MOPITT SIPS ICD
146	Add Terra MODAPS SIPS Requirements	Added requirements from the MODAPS SIPS ICD

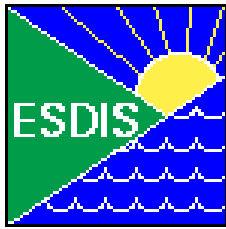


Network Traffic Requirements Review



Terra DCRs Since March 2000 Review 2/2

DCR#	DCR Title	DCR Description
148	Add Terra Aster SIPS Requirements	Added requirements from the ASTER SIPS ICD
160	Clean Up Terra Distance Category and Skip Pricing	Verified distance category values were applicable to source/destination pairs and that skip pricing equals true for LAN and other non priced requirements
162	Update Terra Transition to IP Dates for AGS, SGS, and WFF	Updated Terra Transition to IP dates for AGS, SGS, and WFF to 1/1/2000 per G. Knoble
163	Delete Requirements for Terra Transition to EPGN for Prime Support	Deleted requirements for Terra transitions to EPGN for prime support per G. Knoble
164	Update Dates for Transition of ASTER Service to ERSDAC to Japan ATM	Updated dates for transition of ASTER requirements to ERSDAC from dedicated to Japan ATM service per D. Duffy

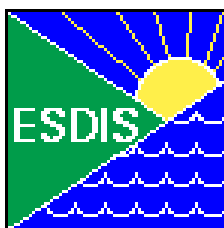


Network Traffic Requirements Review



Future Terra Changes

- Verify that new Ramp-up Schedule identified in the *Basic Assumptions and Guidelines Handbook for EOS Network Requirements* is applied correctly to all requirements

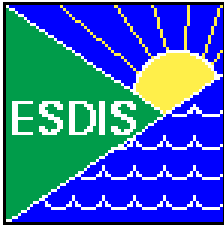


Network Traffic Requirements Review



Terra Information Sources

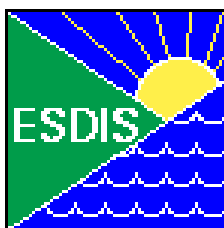
Information Source	Date of Source
ASTER GDS Interface Meeting 10/96	10/1996
ICD: EBnet-EOC; 540-031	9/1997
ICD: EBnet-SCS; 540-091	9/1997
ICD: EBnet-SDF; 540-096	9/1997
ICD: EBnet-SSIM; 540-092	9/1997
ESDIS Direction on External Network Requirements; draft version 0.6.7	10/1998
OS SDPRB / SPSO, Table B.8.1	12/1998
ESDIS Level 2 Requirements for Overall EOS Ground System, Volume 0, Appendix D	11/1999
ERPS Concept Review	2/2000
Basic Assumptions and Guidelines Handbook for EOS Networks Requirement, Ver 1.0	9/2000
Email from G. Knoble regarding NISN level of service for IP services to the EPGN sites and WSC with control center flows	9/29/2000
Email from D. Duffy regarding transition of ASTER ERSDAC service to JAPAN ATM service	10/03/2000
NSRs and emails	Various



Network Traffic Requirements Review



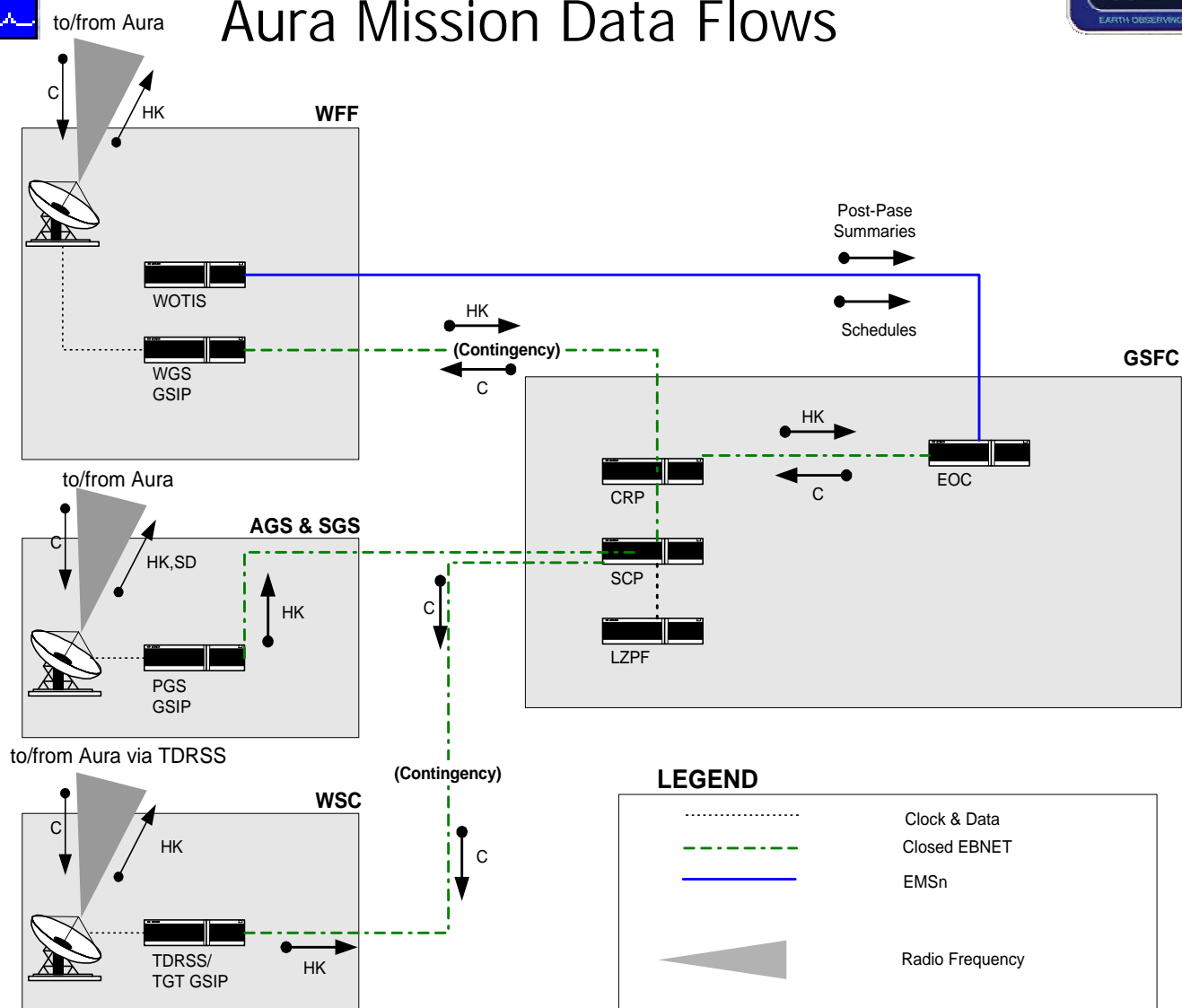
Aura

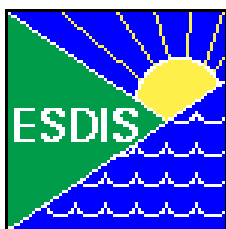


Network Traffic Requirements Review



Aura Mission Data Flows

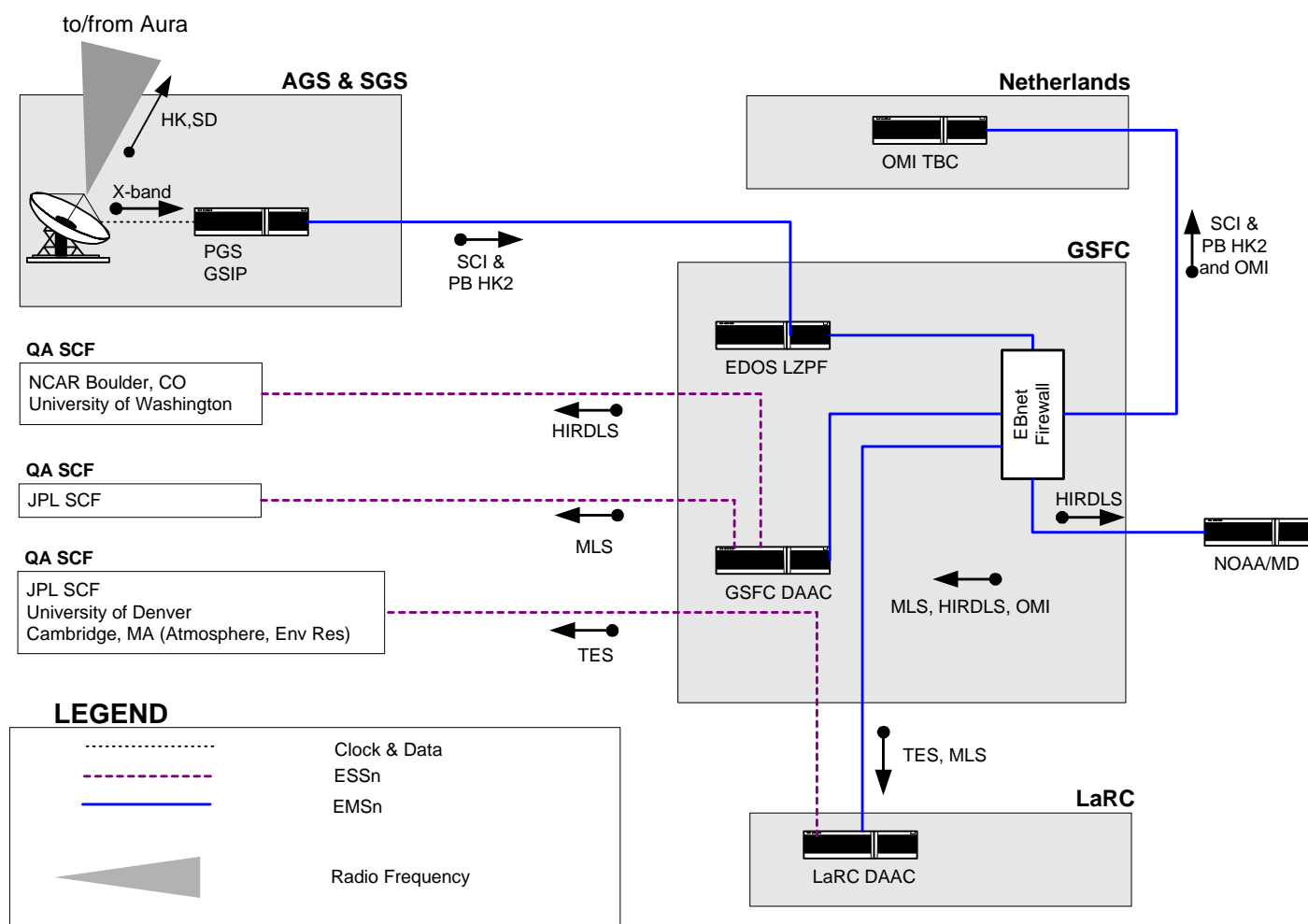


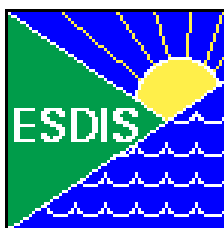


Network Traffic Requirements Review



Aura Science Data Flows





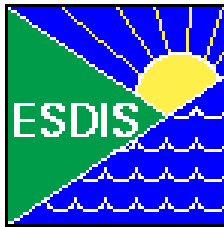
Network Traffic Requirements Review



Aura Milestones

Mission		Inter-DAAC	
Date	Date Explanation	Date	Date Explanation
12/31/2002	Start Prelaunch Activities	1/2003	Inter-DAAC Launch
3/24/2003	Launch minus 3 months		
4/24/2003	Basic User Flows		
5/24/2003	Spacecraft to VAFB		
6/24/2003	Launch minus 1 month		
6/24/2003	Launch		
6/24/2008	Terminate On-Orbit Operations		

Note: Highlighted dates have been changed since March 2000



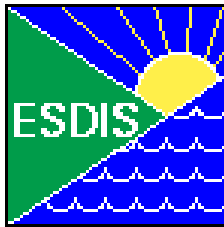
Network Traffic Requirements Review



Aura DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
129	Aura Launch Slip	Updated all milestones to reflect Aura launch slip from December 2002 to June 2003
130	Add Aura MLS SIPS and SCF Flows	Added a requirements from the MLS SIPS ICD and a flow from the GSFC DAAC to the MLS SCF at JPL

No Future Changes

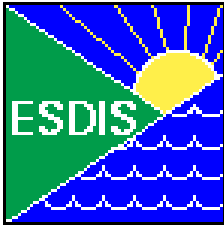


Network Traffic Requirements Review



Aura Information Sources

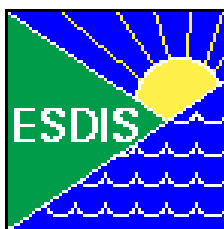
Information Source	Date of Source
ESDIS Level 2 Requirements for Overall EOS Ground System, Vol. 0, Appendix D	3/2000
Draft EOS Aura Operations Concept Document	6/2000
EOS Aura Mission Specific Requirements Document	7/2000
ICD ECS and SIPS: Microwave Limb Sounder (MLS) ECS Data Flows	7/2000
Aura Delta Spacecraft-CDR	9/2000
Basic Assumptions & Guidelines Handbook for EOS Network Requirements Volume 1	9/2000



Network Traffic Requirements Review



Jason-1



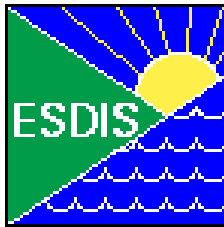
Network Traffic Requirements Review



Jason-1 Milestones

Date	Date Explanation
12/7/2000	Launch minus 3 months
3/7/2001	Launch
3/7/2006	Terminate on-orbit operations

Note: Highlighted dates have been changed since March 2000

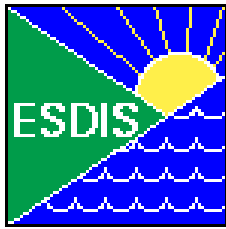


Network Traffic Requirements Review

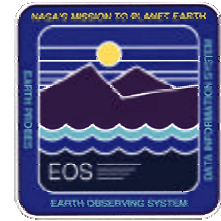


Jason-1 DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
141	Update Jason-1 Milestones Based on Launch Slip	Updated mission milestones due to a launch slip from 2/25/2000 to 3/7/2001

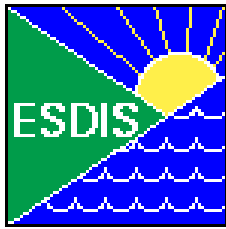


Network Traffic Requirements Review



Future Jason-1 Changes

- NI-EOS Networking Project Basic User Service Requirements Document is out of date
 - Locate current documentation and incorporate changes into ETRD as necessary

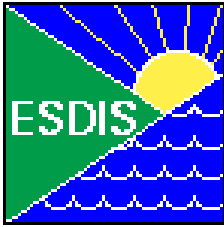


Network Traffic Requirements Review



Jason-1 Information Sources

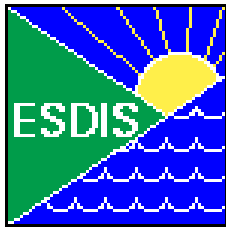
Information Source	Date of Source
NI-EOS Networking Project Basic User Service Requirements Document	undated



Network Traffic Requirements Review



Landsat-7

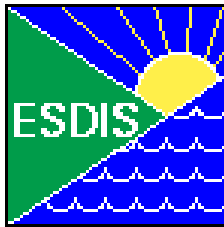


Network Traffic Requirements Review



Landsat-7 Project Milestones

Date	Date Explanation
4/15/1999	Launch
4/15/2004	Terminate On-Orbit Operations



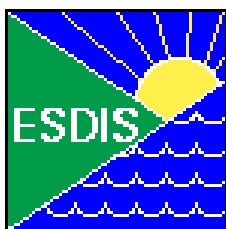
Network Traffic Requirements Review



Landsat DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
156	Landsat Cleanup	Verified all Landsat-7 requirements with Tegan Collier, Landsat Project Manager, and incorporated changes as required

No Pending Changes

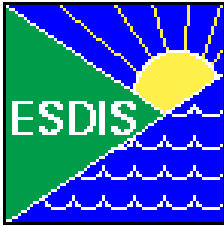


Network Traffic Requirements Review



Landsat-7 Information Sources

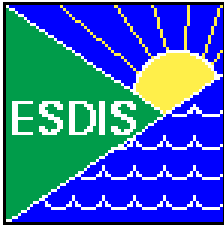
Information Source	Date of Source
Landsat-7 Detailed Mission Requirements (DMR)	9/19/1999
Discussions with D. Lorenz and S. Covington	3/2000
ESDIS Level 2 Requirements for Overall EOS Ground System, Volume 0, Appendix D	3/2000
Discussions with Tegan Collier, Landsat-7 Project Manager	10/2000



Network Traffic Requirements Review



QuikSCAT

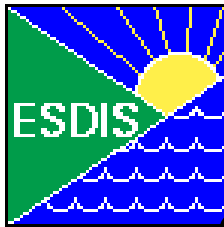


Network Traffic Requirements Review



QuikSCAT Milestones

Date	Date Explanation
7/01/1998	Start support
5/01/2001	Stop support



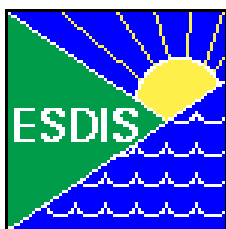
Network Traffic Requirements Review



QuikSCAT DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
155	QuikScat Jet Propulsion Laboratory (JPS) DAAC to Ohio State University (OSU) Flow	Addition of new QuikSCAT Quality Assurance (QA) Science Computing Facility (SCF) requirement

No Future Changes

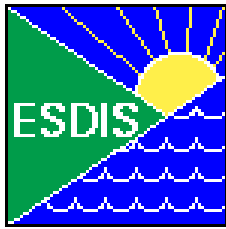


Network Traffic Requirements Review



QuikSCAT Information Sources

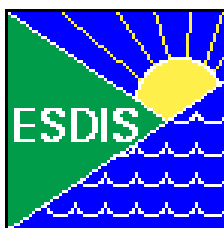
Information Source	Date of Source
QuikSCAT DMR	6/1998
Basic Assumptions and Guidelines Handbook for EOS Networks Requirements	9/2000



Network Traffic Requirements Review



TRMM

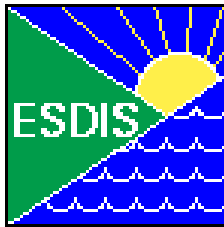


Network Traffic Requirements Review



TRMM Milestones

Date	Date Explanation
1/1/1996	Start Prelaunch
8/28/1997	Launch minus 3 months
10/28/1997	Launch minus 1 month
11/28/1997	Launch
12/19/1997	Complete Early On-Orbit Testing
11/19/2000	Terminate On-Orbit Operations
1/1/2020	End of Reprocessing - 2020

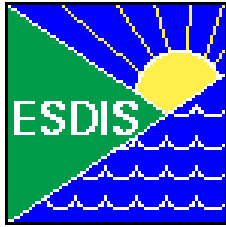


Network Traffic Requirements Review



TRMM DCRs Since March 2000 Review

DCR#	DCR Title	DCR Description
170	TRMM Flow Turned Down	Changed the stop date for 336kbps MSFC to GSFC Routed Data Mission Critical flow from October 1, 2020, to October 1, 1999.

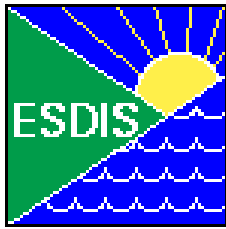


Network Traffic Requirements Review



Future TRMM Changes

- Add two requirements to the ETRD to account for TRMM VIRS and TMI instrument flows to Japan
- Verify all flows from WSC to Japan and WSC to JPL
 - Waiting for verification from Lou Kerzner (FOT for TRMM, GSFC) about WSC to Japan flows

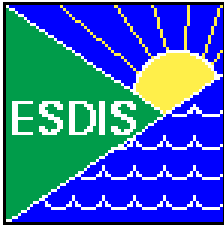


Network Traffic Requirements Review



TRMM Information Sources

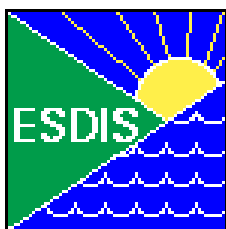
Information Source	Date of Source
Space Network Ground Segment (SNGS) 542-016	October 1997
Jerry Zgonc email	10/6/2000



Network Traffic Requirements Review



UARS

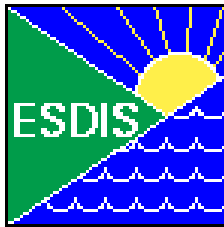


Network Traffic Requirements Review



UARS Milestones

Date	Date Explanation
10/1/1997	Start PSCNI, NI, Aeronet, IPTX
1/1/2020	Stop PSCNI, NI, Aeronet, IPTX

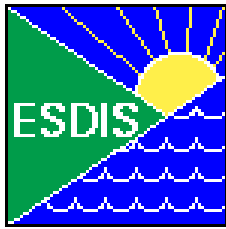


Network Traffic Requirements Review



UARS DCRs Since April 1999 Review

DCR#	DCR Title	DCR Description
165	Add two UARS Command Flows	Added command flows between GSFC and WSC

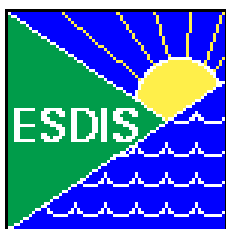


Network Traffic Requirements Review



Future UARS Changes

- We are currently reconciling UARS requirements specified in the FYO1 Mission Specific PSLA against the ETRD; completion may result in changes

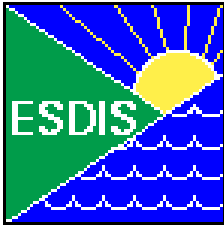


Network Traffic Requirements Review



UARS Information Sources

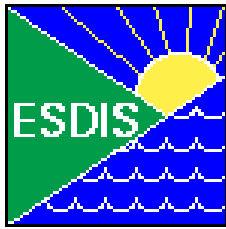
Information Source	Date of Source
SNGS 542-016	October 1997
IP Transition Database	undated



Network Traffic Requirements Review



Conclusion

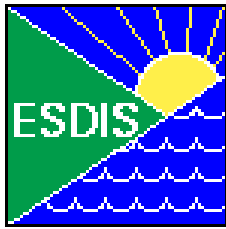


Network Traffic Requirements Review



Next Steps

- Incorporate implementation information and link to network requirements in ETRD
- Implement strategy for capturing dedicated voice requirements
- Incorporate implementation information for commercial ground stations in Alaska and Norway

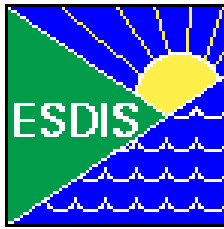


Network Traffic Requirements Review



Discussion Topics

- Identify process for communicating to NISN mid-year requirements changes that could impact implementation/cost
- Strategy for aligning costs with the first of a month for requirements with mid-month milestones

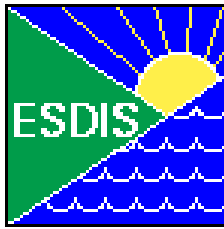


Network Traffic Requirements Review



ACRONYMS and ABBREVIATIONS

AGS	Alaska Ground Station	ISF	ICESat Science Facility
CCB	Configuration Control Board	ISIPS	ICESat Science Investigator-led Processing System
DAAC	Distributed Active Archive Center	JPL	Jet Propulsion Laboratory
DMR	Detailed Mission Requirements	LaRC	Langley Research Center
DCR	Database Change Request	MOC	Mission Operations Center
ESSn	EOSDIS Science Support network	MORD	Mission Operations Requirements Document
ETRD	ESDIS Traffic Requirements Database	MOWG II	Mission Operations Work Group II
GSIP	Ground Station Interface Processor	NI	NASA Internet
GSRD	Ground System Requirements Document	NISN	NASA Integrated Services Network
ICD	Interface Control Document	NSIDC	National Snow and Ice Data Center
IP	Internet Protocol	NSR	NISN Service Request
IPTX	IP Transition		
IRD	Interface Requirements Document		

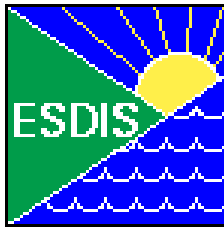


Network Traffic Requirements Review



ACRONYMS and ABBREVIATIONS (Continued)

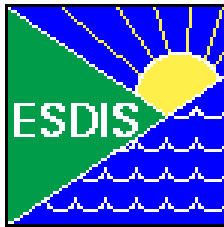
O&M	Operations & Management
POP	Program Operating Plan
PSCNI	Program Support Communications Network Internet
PSLA	Project Service Level Agreement
QA	Quality Assurance
SCF	Science Computing Facility
SIPS	Science Investigator-led Processing System
SGS	Svalbard Ground Station
SNGS	Space Network Ground Segment
WFF	Wallops Flight Facility
WSC	White Sands Complex



Network Traffic Requirements Review



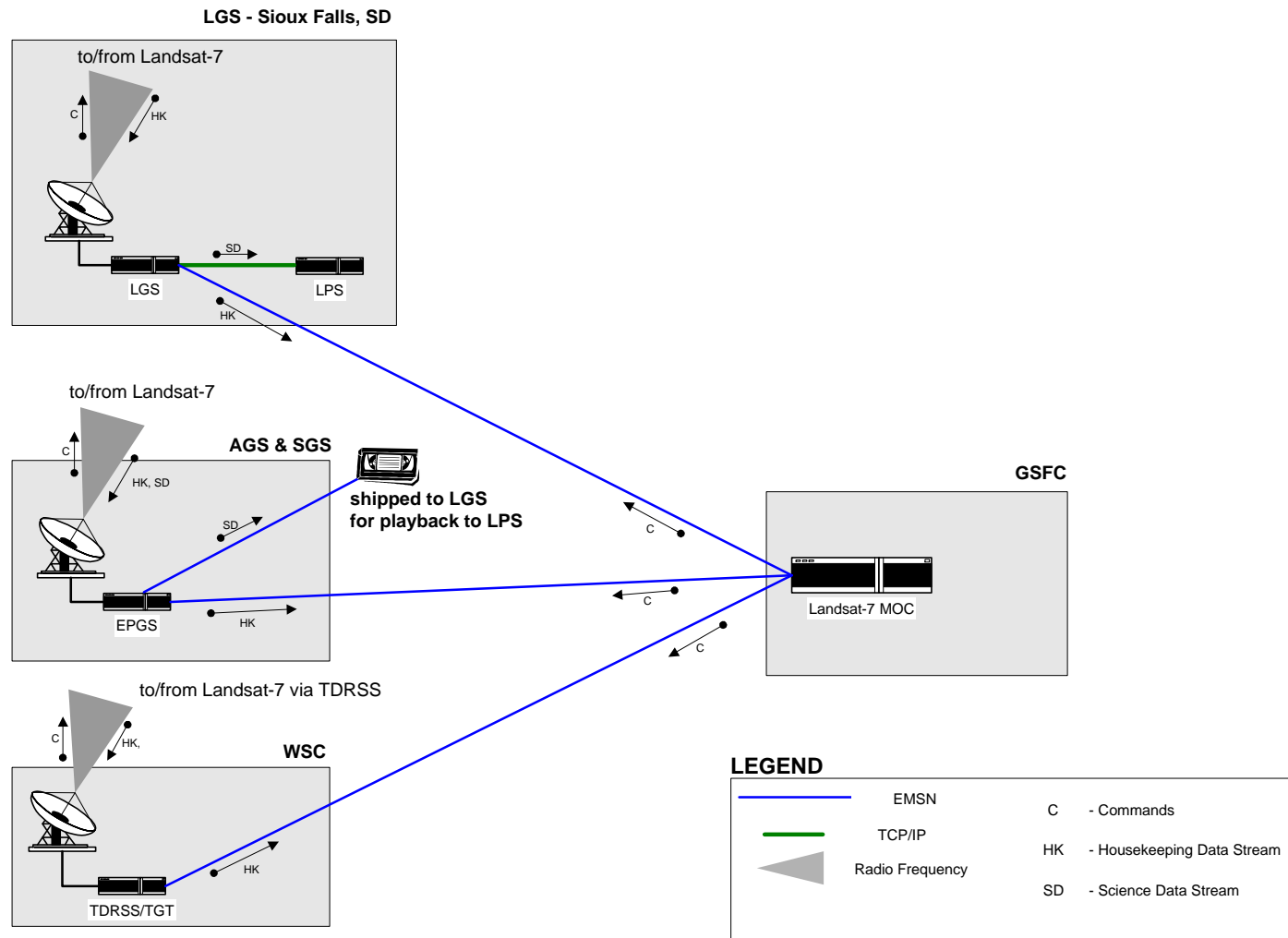
BACKUP SLIDES

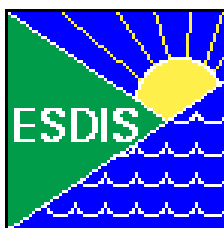


Network Traffic Requirements Review



Landsat-7 Operational Flows





Network Traffic Requirements Review



QuikSCAT Operational Flows

